UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/601,004	09/11/2000	Kazuo Toraichi	A-371	4200

802   7590   10/02/2007

PATENTTM.US
P. O. BOX 82788
PORTLAND, OR 97282-0788

EXAMINER
DO, CHAT C

ART UNIT	PAPER NUMBER
2193	

MAIL DATE	DELIVERY MODE
10/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	**Applicant(s)**
Office Action Summary	09/601,004	KARUO TORAICHI
	Examiner	**Art Unit**	
	Chat C. Do	2193	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>27 August 2007</u>.

2a) ☒ This action is **FINAL.**   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1,2,4 and 6* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1,2,4 and 6* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   This communication is responsive to Amendment filed 08/27/2007.

2.   Claims 1-2, 4, and 6 are pending in this application. Claims 1 and 6 are independent

claims. This Office Action is made final.

Claim Rejections - 35 USC § 101

3.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4.   Claims 1-2, 4, and 6 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter.

Claims 1-2, 4, and 6 cite a system for performing interpolation according to a

predetermined mathematical algorithm. In order for claims to be statutory, claims must

either include a practical application or a concrete, useful, and tangible result. However,

claims 1-2, 4, and 6 merely disclose properties of sampling function H(t) or components

for interpolating samples without disclosing a practical application nor a useful and

tangle result. Even though a claim discloses an image value is resulted of interpolated of

plurality of image data values, but the result is not useful and tangible since the output of

interpolation is just another value as result of interpolation. Therefore, claims 1-2, 4, and

6 are directed to non-statutory subject matter.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

6.   Claims 1-2, 4, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Masaru et al. ("A Smooth Signal Generator Based on Quadratic B-spline Functions") in view of

Maltsev et al. (U.S. 6,018,597).

        Re claim 1, Masaru et al. disclose a two variable data interpolation system (e.g.

abstract, Introduction section lines 16-18 page 1252, Preliminaries section lines 1-5 page

1252, wherein two variable data would be h and k) for processing data (e.g. discrete-time

signal in Preliminaries section line 3 page 1252), wherein an value between a plurality of

discrete data values is interpolated by performing convolution operation (e.g. equations

1-6 page 1252, particularly equations 3-4 for convolution) corresponding to the plurality

of discrete data positioned at equal intervals (e.g. Preliminaries section lines 1-4 page

1252) in a two dimensional space using a sampling function (e.g. phi-function as seen n

Figure 1 in page 1253 and equation 2 in page 1252) that is differentiable finite times (e.g.

right column in page 1253) and has values of a local support (e.g. Figure 1 and equation 2

wherein parameter h and l are normalized or set to 1, then equation 2 will have specific

finite values in a range [-3/2,3/2] and zero value outside that range; left column lines 1-5

page 1253) wherein with letting a third order B spline function be F(t), the sampling

function, H(t) is defined as follows: H(t) = -F(t+1/2)/4 + F(t) – F(t-1/2)/4 (e.g. equation 4-6).

Masaru et al. fail to disclose that the data is image data. However, Maltsev et al. disclose in Figure 4 an interpolation process of an image data (e.g. 102-106 in Figure 4) utilizing convolution.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add image data into the interpolation system as seen in Maltsev et al.'s Figure into Masaru et al.'s invention because it would enable to efficiently reduce or minimize errors and noise in modifying image data (e.g. col. 1 lines 32-45).

Re claim 2, Masaru et al. further disclose the sampling function is a function that is differentiated only once over a whole region (e.g. capable of differentiated only once over a region due to smooth function, Introduction section lines 16-18 page 1252 and right column in page 1253).

Re claim 4, Masaru et al. further disclose the third order B spline function F(t) is disclosed in page 7-8 (e.g. F(t) is as function disclose in equation 2 page 1252 right column wherein h =1 and l =0 with scaling factor).

Re claim 6, it is an apparatus claim having similar limitations cited in claim 2. Thus, claim 6 is also rejected under the same rationale as cited in the rejection of rejected claim 2.

Response to Arguments

7.   ·Applicant's arguments filed 08/27/2007 have been fully considered but they are not

persuasive.

   a.   The applicant argues in pages 6-7 for claims rejected under 35 U.S.C. 101 that the

   claims indeed disclose concrete, useful, and tangible result wherein the claims are

   developed to reduce the amount of the operation by the sampling functions and further be

   able to aliasing the distortions included in the data obtained as the result of interpolation.

      The examiner respectfully submits that these advantages are not seen or cited in

      the claims. Instead, the claims just merely disclose mathematical operations

      including interpolation and convolution utilizing sampling function wherein the

      sampling function has particular properties. In order for claims to be statutory,

      the claims must include a practical application or a concrete, useful, and tangible

      result.

   b.   The applicant argues in page 7 last paragraph for claims rejected under 35 U.S.C.

   103(a) that Figure 1 is not a local support function which represented for equation (3)

   which k is set at 0 because K can not be set a specific value and K must have a value

   from −inf to +inf.

      The examiner respectfully submits that the applicant has misunderstood the

      primary reference by Masaru. In expression (3), it discloses a multiple sampling

      functions corresponding to the subscripts k wherein k can take any values from -

      inf to +inf. Figure 1 is a first order (i.e. corresponding to $k = 0$) of the sampling

function in expression (3). In another words, by setting k as subscript to 0 in expression (3), it would yield the sampling function as seen in Figure 1 with local support as required by the claims.

c.   The applicant argues in page 8 first paragraph for claims rejected under 35 U.S.C. 103(a) that the document by Masaru cannot be the claimed sampling function because if it is, then it should develop the technically very useful advantage of the sampling function that involves no aliasing distortion.

The examiner respectfully submits that the current claim language does not require any useful advantage of sampling function that involves no aliasing distortion, instead the claims only require a sampling function having a local support as expressed in the claim which clearly seen in the document by Masaru. In addition, the sampling function as seen in Figure 1 by Masaru would lead to no aliasing distortion since it is the property of local support as it would distort the data outside the range at center to minimal (e.g. ideally zero).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing
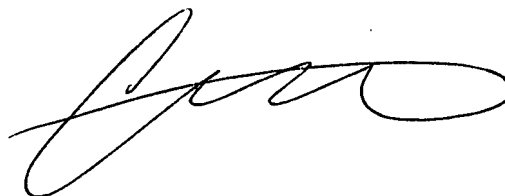
date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Chat C. Do whose telephone number is (571) 272-3721. The

examiner can normally be reached on M => F from 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

<div style="text-align:right">
Chat C. Do
Examiner
Art Unit 2193
</div>

September 26, 2007